Patent claims

1.
An arrangement in a mobil data communications terminal (103) for providing mobil IP
communication via a dual tunnell IP packet data connection between a first application
(121) in the mobil data communications terminal and a second application (101) in a
second terminal in communication with an inner network (105), said inner network
directly or via a firewall (104) connected with an outer network (107), wherein an outer
mobil IP home agent (102) is arranged in the outer network or in a DMZ (106)
associated with the firewall and an inner mobil IP home agent (130) is arranged in the
inner netwotk, said arrangement comprising:
a first mobil IP client part (116) configurable for association with the inner mobil IP
home agent (130), said first mobil IP client part arranged to convey data between the
first application and the second mobil IP client part and to an inner tunnell part (123)
directed to the inner home agent, and
a second mobil IP client part (115) configurable for association with the outer mobil IP
home agent (102), said second mobil IP client part arranged to convey data between the
first mobil IP client part and the outer network and to an outer tunnell part (124)
directed to the outer home agent.

2.
Arrangement according to claim 1, wherein said second mobil IP client part further is
configurable to also convey data between the first application and the outer network,
and said arrangement further comprising a device which, if the terminal obtains access
via the outer network, is arranged to provide a first connection between the first
application and the first mobil IP client part, a second connection between the first
mobil IP client part and the second mobil IP client part, and a third connection between
the second mobil IP client part and the outer mobile IP home agent, and
if the terminal obtains access via the inner network, is arranged to provide a fourth
connection between the first application and the second mobil IP client part, and a fifth
connection between the second mobil IP client part and the inner mobile IP home agent.

3.
Arrangement according to claim 1 or 2, wherein said first mobil IP client part (116) is
controllable for activation or deactivation, and said arrangement further comprising a
mobil IP detection device:

    c. said mobil IP detection device adapted to activate the first mobil IP client part
on detection of a connection to the inner network (105) and a successfull mobil
IP registration with the inner home agent (130), and

    d. said mobil IP detection device adapted to activate the second mobil IP client part
on detection of a connection to the outer network (107) and a successfull mobil
IP registration with the outer home agent (130).

4.

Arrangement according to claim 1 or 2, wherein said first mobil IP client part (116) is
controllable for activation and deactivation, and that the arrangement further comprises
a mobil IP detection device arranged to activate the first mobil IP client part on
detection of connection to the outer network (107) by means of at least one of a
detection device selected from a group comprising:

    e. a first monitoring device arranged to determine the source IP address of an
incoming packet and to determine that the address is outside an address range
configured for the inner network (105),

    f. a second monitoring device arranged to analyze ICMP control messages and
arranged to determine that an address associated with the ICMP control message
is outside an address range configured for the inner network (105),

    g. a third monitoring device arranged to detect an outer home agent (102) on
transmission of a registration message with improper security association, and

    h. a fourth monitoring device arranged to compare results from said first and
second monitoring devices with collected history regarding MAC and IP
addresses to Mobil IP Foreign Agents, Default gateways, and WLAN access
points that indicate that the mobil terminal is operating in the outer network, and
wherein at least one of said detection devices (a,b,c,d) is arranged to indicate that
the mobil terminal (103) is connected to the outer network.

5.

Arrangement according to claim 1 or 2, wherein
said first mobil IP client part (116) is controllable for deactivation, and
said arrangement further comprising a mobil IP detection device arranged for
deactivating the first mobil IP client part on detection of a connection to the outer
network (107) by means of at least one of a detection device selected from:

    e. a first monitoring device arranged to determine the source IP address of an
incoming packet and arranged for detecting that the address is inside an address
range figured for the inner network (105),

    f.   a second monitoring device arranged to analyze ICMP controll messages and arranged to detect that an address associated with the ICMP controll message is inside an address range configured for the inner network (105),

    g.   a third monitoring device arranged to detect an inner home agent (130) on transmission of a registration message with incorrect security association, and

    h.   a fourth monitoring device arranged to detect inconsistances in results from the first, the second and the third monitoring devices and collected history regarding MAC and IP addresses to Mobil IP Foreign Agents, Default Gateways, and WLAN access points that indicate that the mobil terminal is operating in the inner network (105), and

wherein at least one of said detection devices (a,b,c,d) is arranged to indicate that the mobil terminal (103) is connected to the inner network.

6.

Arrangement according to any one of the previous claims, wherein said arrangement further comprises,

a third security client part interposed between the first and second mobil IP client parts and configurable for via a security arrangement arranged between said inner and outer networks establishing a secure connection with the inner network.

7.

A mobil IP terminal, wherein said mobil IP terminal comprises an arrangement according to any one of the previous claims.

8.

A computer program product comprising a data carrier having thereon a computer program code loadable and executable in a mobil IP data communications terminal, wherein said computer program code when loaded and executed in the mobil IP data communications terminal effects the establishment of an arrangement as recited in any one of claims 1 through 6.

9.

An information technology (IT) system for providing a packet data connection between a first application (121) operable in a mobil data communications terminal (103) and a second application (101) operable in a second terminal in an inner network (105) protected by a firewall (104), said system arranged for communication by means of mobil IP with a system comprising the inner network, an outer network (107) and an

outer home agent (102) arranged in the outer network or in a DMZ (106) associated
with the firewall arranged between the inner and outer network, wherein:
an inner home agent (130) is arranged in the inner network, and
said inner home agent is configurable for association with a first mobil IP client part
5   (116) operable in the mobil data communications terminal, and said outer home agent is
configurable for association with a second mobil IP client part (115) operable in the
mobil data communications terminal,
said first mobil IP client part being arranged to convey data between said first
application and said other mobil IP client part and to an inner tunnell part (123) directed
10   to the inner home agent, and
said second mobil IP client part being arranged to convey data between said first mobil
IP client part and said outer network and to an outer tunnell part (124) directed to said
outer home agent.

15   10.

A data communications system for providing a packet data connection between a first
application operable in a mobil data communications terminal (103) and a second
application (101) operable in a second terminal connected to an inner network (105)
protected by a firewall (104), said system arranged for communication by means of
20   mobil IP via a system comprising the inner network, an outer network (107) and an
outer home agent (102) arranged in said outer network or in a DMZ (106) associated
with the firewall (104) being arranged between the inner and outer networks, wherein:
an inner home agent (130) is arranged in the inner network, and
said mobil data communications terminal including:

25   c. a first mobil IP client part (116) configurable for association with said inner
mobil IP home agent (130), said first mobil IP client part arranged to convey
data between said first application and said second mobil IP client part and to an
inner tunnell part (123) directed to said inner home agent, and
d. a second mobil IP client part (115) configurable for association with said outer
30   mobil IP home agent (102), said second mobil IP client part being arranged to
convey data between said first mobil IP client part and said outer network and to
an outer tunnell part (124) directed to said outer home agent.

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